

## Product Specifications

### Industrial 1-Port 10/100/1000T Ultra PoE + 1-Port Coax/UTP Long Reach PoE Injector/Extender

### LRP-201-KIT

Version 1.0

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#### Change History:

Revision	Date	Author	Change List
Version 1.0	2018/07/23	Keithy Lin	Initial release

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## 1. PRODUCT DESCRIPTION



PLANET Long Reach PoE solution is designed to extend IP Ethernet transmission and inject power simultaneously into a remote ultra PoE compliant powered device (PD) beyond the 100 meters distance limit of Ethernet.

### Powerful PoE over Coaxial/UTP Extender Kit

The LRP-201-KIT, a PLANET Long Reach PoE solution, is an Industrial Single-port Ultra PoE over Coaxial/UTP Extender Kit featuring long range data and power transmission over any existing coaxial, UTP cable or telephone wire for distance up to 600 meters (1,968ft.) and converts power to IEEE 802.3at/bt PoE over another 100-meter Ethernet cable connected to the remote PoE PD. The LRP-201-KIT provides multi applications for easy plug-n-play operation and deployment in climatically demanding environments with wide temperature range from -20 to 70 degrees C. It makes the installation of remote PoE PDs easier and more efficiently.

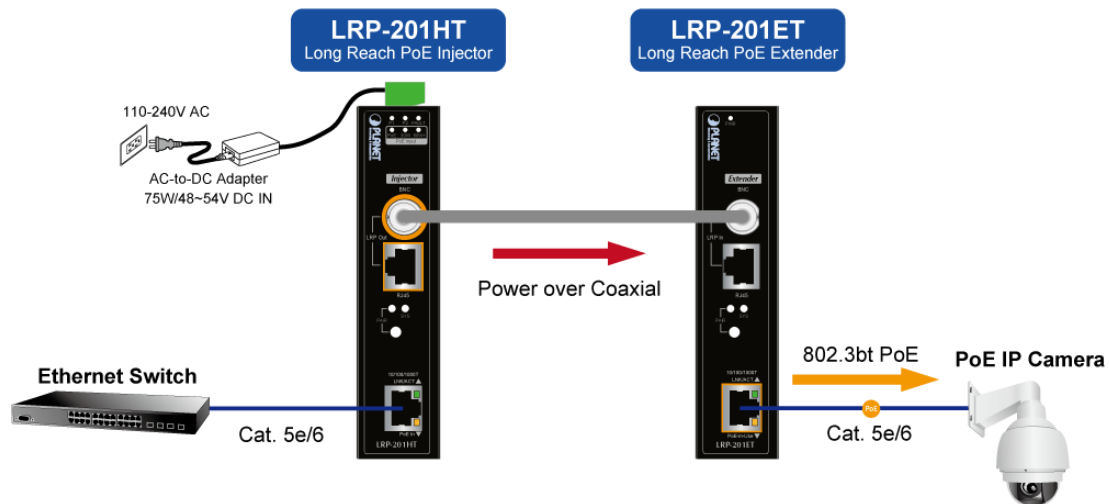


### Composition of Long Reach PoE Extender Kit

The LRP-201-KIT consists of a Long Reach PoE injector and a Long Reach PoE extender which can work in pair anywhere on your network infrastructure. It contains two brand-new products:

- **LRP-201HT**: Industrial 1-Port 10/100/1000T Ultra PoE PD + 1-Port Coax/UTP Long Reach PoE Injector
- **LRP-201ET**: Industrial 1-Port 10/100/1000T Ultra PoE PSE + 1-Port Coax/UTP Long Reach PoE Extender

The LRP-201HT can not only support dual power input (by DC adapter/PoE) but also transmit data and power over coaxial/UTP cable to the LRP-201ET, which can be located as far as 600m away. It will then deliver the data and power output with a maximum of up to 60 watts to a PoE PD over additional 100 meter length Ethernet cable, thus expediting the IP surveillance network or wireless LAN infrastructure in long distance. Both of the two products come in a compact but rugged IP30 metal housing. Their DIN-rail/wall-mounted design fits easily in any space-limited location.

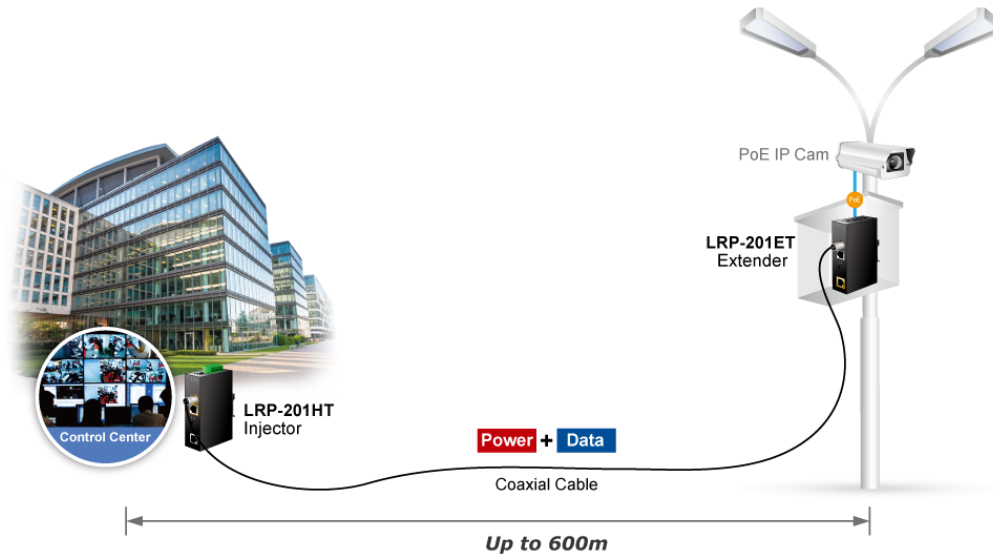


Functions	LRP Injector	LRP Extender
	LRP-201HT	LRP-201ET
<b>Power Input</b>	Power adapter with <b>48~54V</b> DC in or RJ45 with 802.3at/bt PoE input	<b>BNC</b> with DC power over coaxial input or <b>UTP</b> with DC power over UTP input
<b>Power Output</b>	<b>BNC</b> with DC power over coaxial output or <b>UTP</b> with DC power over UTP output	RJ45 with 802.3at/bt PoE output
<b>LAN Connection</b>	Ethernet or ultra PoE switch at head-end	PoE PD

### IP Ethernet and Power over Long Existing Coaxial/UTP Cable

A normal UTP cable can only be extended up to 100 meters, but with the LRP-201-KIT, the distance for PoE networking can be extended up to 600 meters (1,968ft.) when functioning with the LRP-201-KIT over 75 ohm coaxial cable or up to 400 meters (1,312ft.) over UTP/telephone wire with stable, high-quality video

transmission. It eliminates the need for additional remote site power while allowing a single power source to provide power to both LRP extenders and the PoE PD at long range.



### Securing Network Connection with 128-bit AES Encryption

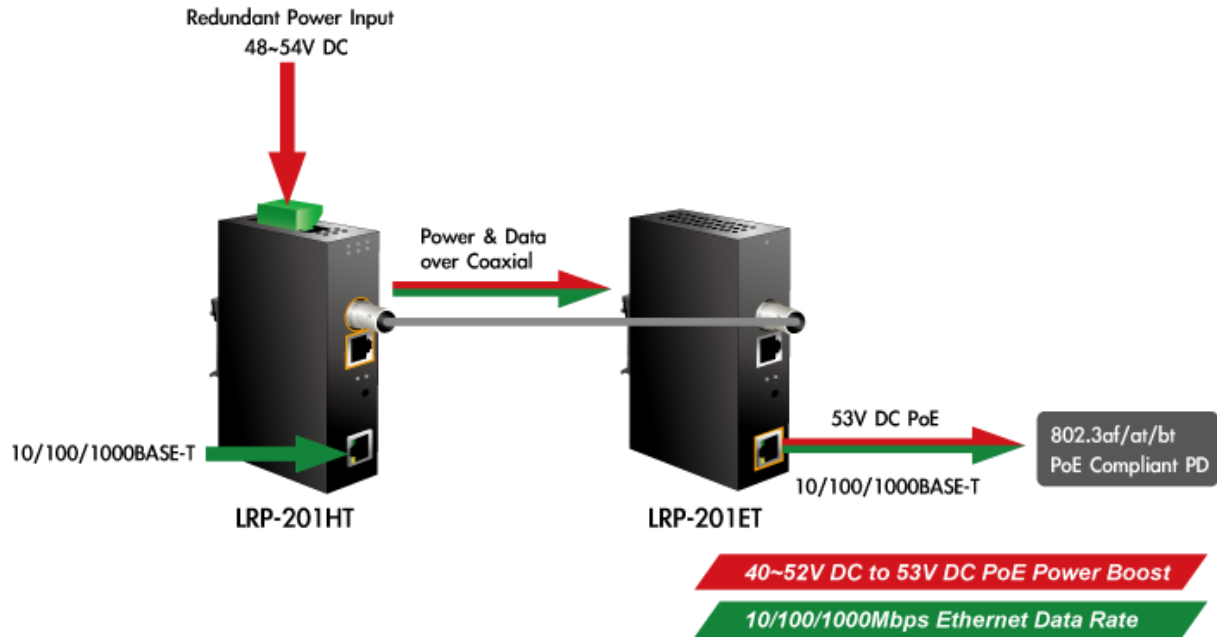
Simply by pressing the PAIR button on the LRP-201HT and LRP-201ET, users can easily set up a hassle-free, secure network within minutes. When the PAIR LED turns on, it provides 128-bit AES encryption for network security and data protection.



*128-bit AES Encryption for  
Network Security and Data Protection*

### Convenient and Reliable Power System

The LRP-201HT provides dual-redundant, reversible polarity 48~54V DC power supply inputs for high availability applications. When the LRP-201HT transmits power over coaxial/UTP cable to the LRP-201ET, the LRP-201ET adopts power boost technology to solve voltage loss issue but does not require additional power supplies.



### Plug & Play Installation

With the plug and play feature, PLANET Long Reach PoE Extender Kit can be used immediately without the need of configuration and is also compliant with all kinds of IP network protocols. Moreover, the rich diagnostic LEDs on the front panel show the operating status of the individual port and the whole system, enabling the administrator to efficiently manage the network.

## 2. PRODUCT FEATURES

### ➤ **Interface**

- LRP-201HT:
  - ◆ 1-port **BNC LRP output**
  - ◆ 1-port **RJ45 LRP output**
  - ◆ 1-port Ethernet **Data + Power input**
  - ◆ 1 terminal block for master and slave power input. (Power Range: 48~54V DC redundant power)
  - ◆ 1 PAIR button
  - ◆ 1 Reset button
- LRP-201ET:
  - ◆ 1-port **BNC LRP input**
  - ◆ 1-port **RJ45 LRP input**
  - ◆ 1-port Ethernet **Data + Power output**
  - ◆ 1 PAIR button
  - ◆ 1 Reset button

### ➤ **Power over Ethernet**

- Eliminates power cabling with PoE over coaxial/UTP/telephone wire
- Supports Power over Ethernet PSE (PoE Injector)
- Power and Ethernet data transmission over coaxial up to 600m
- Power and Ethernet data transmission over UTP/telephone wire up to 400m
- Complies with IEEE 802.3at/bt Power over Ethernet PD on RJ45 port
- Supports Long Reach PoE power up to 75 watts (depending on power source and cable distance)
- Supports PoE Power up to 60 watts (depending on power source and cable distance)
- Auto detects remote PD
- Plug and Play with no configuration required

### ➤ **Hardware**

- LED indicators for Power LED, SYS LED, PAIR LED, PoE-in-Use LED and PoE Input LED
- IP30 slim type metal case

### ➤ **Industrial Case and Installation**

- Compact size; DIN-rail or wall-mount design
- Supports 6KV DC Ethernet ESD protection
- -20 to 70 degrees C operating temperature

### 3. PRODUCT SPECIFICATIONS

#### 3.1 MAIN COMPONENTS

	LRP-201HT	LRP-201ET
PoE PD	Microsemi PD70210A	N/A
PoE PSE	N/A	Microsemi PD69204T4ILQ-TR
PoE Controller	N/A	Microsemi PD69200C
MCU	N/A	NUVOTON W78LE54C

#### 3.2 FUNCTION SPECIFICATIONS

Model	LRP-201HT	LRP-201ET	
Functions	Long Reach PoE Injector	Long Reach PoE Extender	
<b>Hardware Specifications</b>			
Input Power Terminal Block	Redundant power: 48~54V DC Fault alarm: 1A@24V DC	-	
Ethernet Interface	Copper	10/100/1000BASE-T RJ45 Auto-negotiation/ Auto-MDI/MDI-X	
	Power over Ethernet Standard	IEEE 802.3at/bt PoE PD	IEEE 802.3at/bt PoE PSE
	PoE Input	Supports both Mid-span and End-span PSE Input Range: 48~54V DC	-
	PoE Output	-	53V DC, 1.2A max.
	PoE Budget	-	Up to 60 watts
	PoE Mode	-	Pair 1 End-span: 1/2 (-), 3/6 (+) Pair 2 Mid-span: 4/5 (+), 7/8 (-)
	Data Rate	100/100/1000Mbps	
	Cabling	Cat. 5e or above	
	Maximum Distance	100 meters	
	Maximum Frame sizes	1522bytes	
Long Reach PoE Interface*	Connectivity	1 x RJ45 female connector Long Reach PoE over UTP PSE	1 x RJ45 female connector Long Reach PoE over UTP PD
		1 x BNC female connector Long Reach PoE over coaxial PSE	1 x BNC female connector Long Reach PoE over coaxial PD
	Power Input	-	40~54V DC
	Power Output	44~54V DC	-
	Power Pin Assignment	Coaxial <ul style="list-style-type: none"> <li>■ BNC center pole: DC+</li> <li>■ BNC shield: DC-</li> </ul> UTP <ul style="list-style-type: none"> <li>■ RJ45 Pins 1, 3, 5, 7: VCC+</li> <li>■ RJ45 Pins 2, 4, 6, 8: VCC-</li> </ul>	
Cabling	Coaxial <ul style="list-style-type: none"> <li>■ Coaxial cable: 75 ohm</li> <li>■ RG-6/U cable, less than 12Ω/1000 ft.</li> </ul>		

		<ul style="list-style-type: none"> <li>■ RG-59/U cable, less than 30Ω/1000 ft.</li> </ul> UTP <ul style="list-style-type: none"> <li>■ Cat. 5e/6 UTP cable</li> <li>■ EIA/TIA-568 100-ohm STP</li> </ul>			
	<b>Maximum Distance</b>	Coaxial <ul style="list-style-type: none"> <li>- Max. 200m with PoE++ output (656ft.)</li> <li>- Max. 400m with PoE+ output (1312ft.)</li> <li>- Max. 600m with PoE output (1,968ft.)</li> </ul> UTP <ul style="list-style-type: none"> <li>- Max. 100m with PoE++ output (328ft.)</li> <li>- Max. 200m with PoE+ output (656ft.)</li> <li>- Max. 300m with PoE output (984ft.)</li> <li>- Max. 400m with PoE output (1,312ft.)</li> </ul>			
	<b>Long Reach Ethernet Standard</b>	ITU-T G.hn			
	<b>Modulation Type</b>	OFDM			
	<b>Security</b>	128-bit AES encryption			
	<b>Frequency Band</b>	1 ~ 100 MHz			
	<b>Multiple nodes</b>	Supports up to 4 LRP extenders within 0.6km			
	<b>LRP Compatibility</b>	LRP-201ET - 1-Port LRP Extender		LRP-201HT- 1-Port LRP Injector	
<b>LRP Coaxial Performance</b>		<b>Distance</b>	<b>Data Rate (Upload / Download)</b>	<b>54V DC Input</b>	<b>60W PoE++ Input</b>
		200m	480/530 Mbps	54W	40W
		400m	285/345 Mbps	29W	25W
		600m	100/121 Mbps	16W	14W
<b>LRP UTP Performance</b>		<b>Distance</b>	<b>Data Rate (Upload / Download)</b>	<b>54V DC Input</b>	<b>60W PoE++ Input</b>
		100m	398/476 Mbps	53W	34W
		200m	279/295 Mbps	51W	32W
		300m	106/154 Mbps	37W	29W
		400m	56/85 Mbps	26W	19W
<b>LED Indicators</b>	<ul style="list-style-type: none"> <li>■ P1</li> <li>■ P2</li> <li>■ FAULT</li> <li>■ PoE Input</li> <li>■ SYS</li> <li>■ PAIR</li> <li>■ PoE IN</li> <li>■ LNK/ACT</li> </ul>		<ul style="list-style-type: none"> <li>■ PWR</li> <li>■ SYS</li> <li>■ PAIR</li> <li>■ PoE-in-Use</li> <li>■ LNK/ACT</li> </ul>		
<b>ESD Protection</b>	6KV DC				
<b>PAIR Button</b>	Press for 3 sec to join LRP-201ET		Press for 3 sec to join LRP-201HT		
<b>Reset Button</b>	Press over 10 sec to return to factory default				
<b>Enclosure</b>	IP30 slim type metal case				
<b>Installation</b>	DIN-rail kit or wall-mount ear				
<b>Dimensions (W x D x H)</b>	135 x 87.8 x 32mm				



<b>Weight</b>	520g	510g
<b>Power Requirements</b>	<ul style="list-style-type: none"> <li>■ RJ45 PoE Input: 802.3at/bt 48~54V DC, 2.5A max.</li> <li>■ DC Input: 48~54V DC, 2.5A max.</li> </ul>	<ul style="list-style-type: none"> <li>■ BNC Power over Coaxial Input: 40~54V DC, 1.8A max.</li> <li>■ RJ45 Power over Ethernet Input: 40~54V DC, 1.8A max.</li> </ul>
<b>Standards Conformance</b>		
<b>Standards Compliance</b>	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3bt 4-pair Power over Ethernet Type 3 IEEE 802.3at Power over Ethernet Plus	
<b>Regulatory Compliance</b>	FCC Part 15 Class A, CE	
<b>Environment</b>		
<b>Temperature</b>	Operating: -20~70 degrees C Storage: -30~75 degrees C	
<b>Humidity</b>	Operating: 5~95% (non-condensing) Storage: 5~95% (non-condensing)	
<b>Standard Accessories</b>		
<b>Package Contents</b>	<ul style="list-style-type: none"> <li>● LRP-201-KIT</li> <li>● User's Manual</li> <li>● Wall-mount Kit</li> <li>● RJ45 Dust Cap x 2</li> <li>● Warning Sticker</li> </ul>	

### 3.3 PHYSICAL SPECIFICATIONS of LRP-201HT:

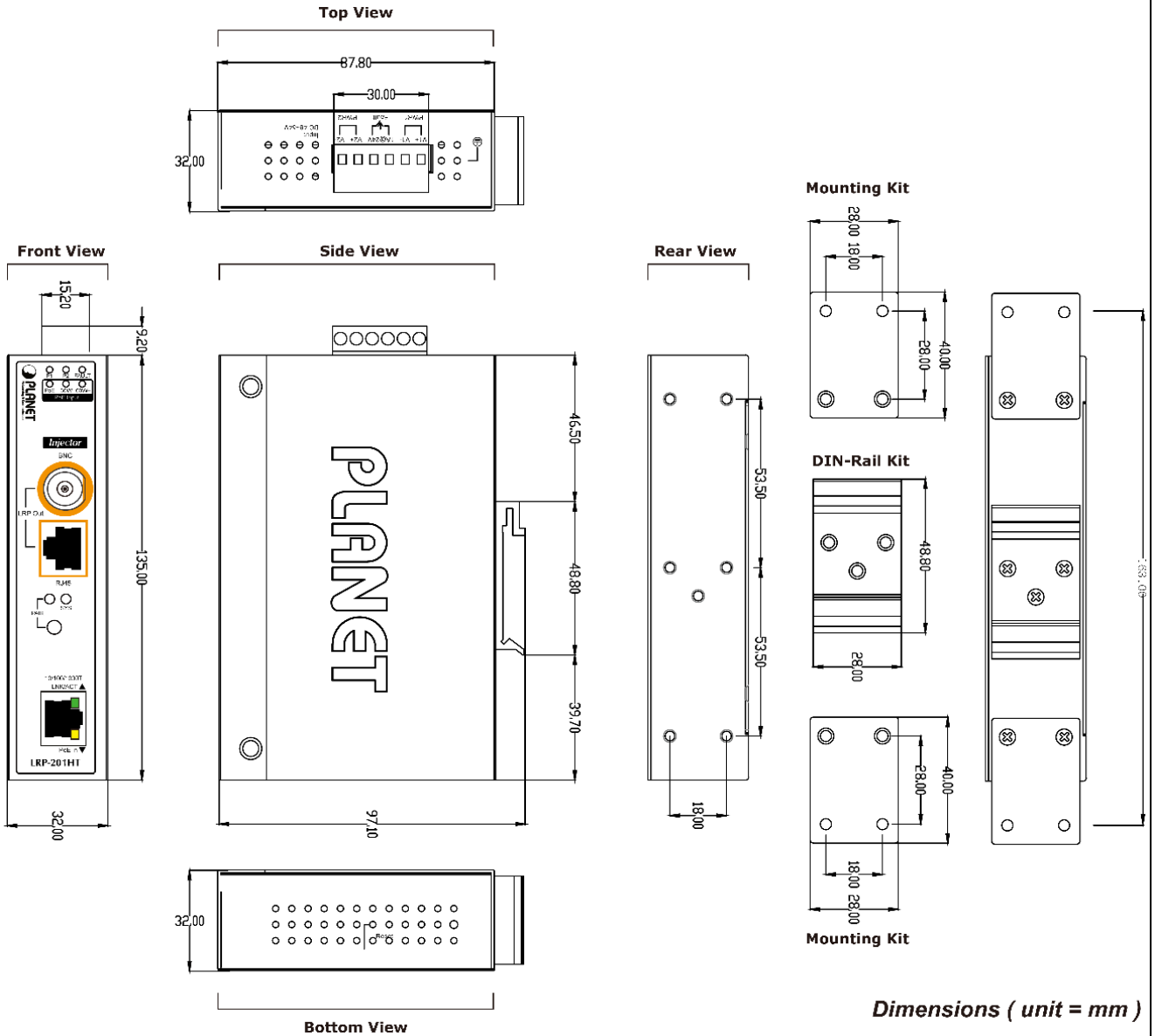
■ **Dimensions (W x D x H)**

135 x 87.8 x 32 mm

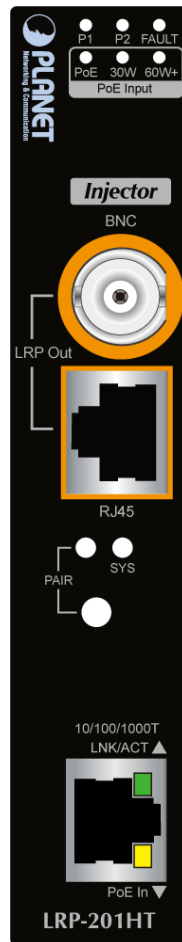
■ **Weight**

520g

■ **Diagram**



■ Front Panel



■ LED Indicators

◆ System

LED	Color	Function
P1	Green	Lit: Power 1 is active.
		Off: Power 1 is inactive.
P2	Green	Lit: Power 2 is active.
		Off: Power 2 is inactive.
FAULT	Red	Lit: Indicates either power 1 or power 2 has no power.
		Off: No failure.
SYS	Green	Lit: Indicates the system is working.
		Off: Indicates the system is booting.
Pair	Green	Lit: Indicates the link is working between LRP-201-KIT.
		Off: Indicates the link is inactive.

◆ PoE Input

LED	Color	Function
PoE	Green	Lit: Indicates the port is receiving 48~54V DC in-line power and ready for output.
30W	Green	Lit: Indicates the device is working in 802.3at PoE mode.
60W+	Green	Lit: Indicates the device is working in Ultra PoE mode.

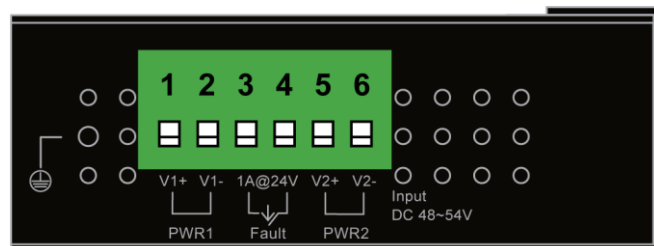
◆ **1000Mbps PoE In Slot**

LED	Color	Function
LNK/ACT	Green	<b>Lit:</b> Indicates the link through that port is successfully established at 10/100/1000Mbps.
		<b>Blinks:</b> Indicates that the Switch is actively sending or receiving data over that port.
PoE In	Orange	<b>Lit:</b> Indicates the RJ45 port is receiving the PoE power.

◆ **Button**

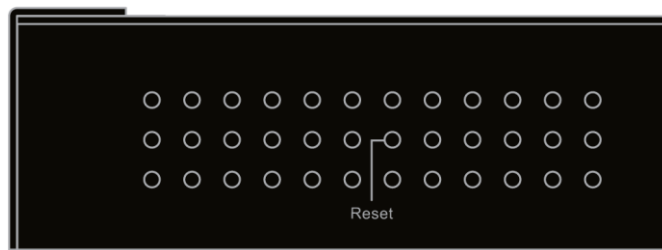
Button	Function
<b>PAIR</b>	Press the PAIR button for 3 seconds to join another LRP extender. Please also press the PAIR button of LRP extender for 3 seconds in two minutes.
<b>Reset</b>	Hold the Reset button for about 10 seconds until the PAIR and SYS LEDs are off, meaning the device has been reset to default setting.

■ **Upper Panel**



1	2	3	4	5	6
Power 1		Fault		Power 2	
+	-			+	-

■ **Bottom Panel**



### 3.4 PHYSICAL SPECIFICATIONS of LRP-201ET:

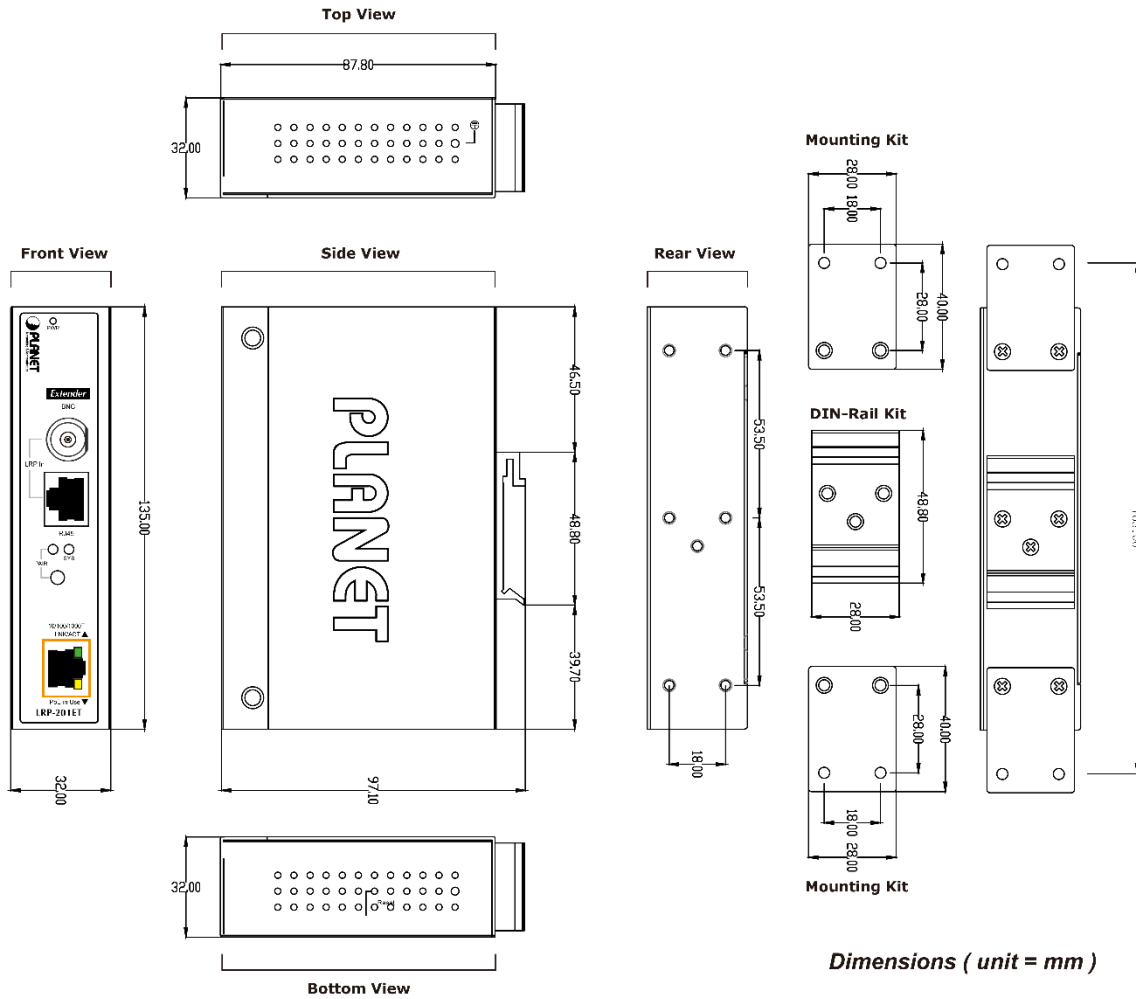
■ **Dimensions (W x D x H)**

135 x 87.8 x 32 mm

■ **Weight**

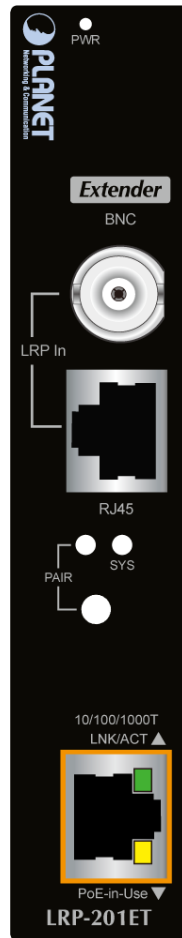
510g

■ **Diagram**



*Dimensions ( unit = mm )*

■ Front Panel



■ LED Indicators

◆ System

LED	Color	Function
PWR	Green	<b>Lit:</b> Indicates the power is on.
SYS	Green	<b>Lit:</b> Indicates the system is working.
		<b>Off:</b> Indicates the system is booting.
PAIR	Green	<b>Lit:</b> Indicates the link is working between LRP-201-KIT.
		<b>Off:</b> Indicates the link is inactive.

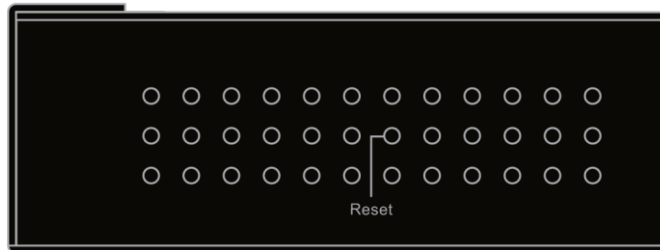
◆ 1000Mbps PoE-in-Use Slot

LED	Color	Function
LNK/ACT	Green	<b>Lit:</b> Indicates the link through that port is successfully established at 10/100/1000Mbps.
		<b>Blinks:</b> Indicates that the Switch is actively sending or receiving data over that port.
PoE-in-Use	Orange	<b>Lit:</b> Indicates the port is providing 53V DC in-line power.

◆ **Button**

Button	Function
<b>PAIR</b>	Press PAIR button during 3 seconds to join another LRP injector. Please also press the PAIR button of LRP injector for 3 seconds in two minutes.
<b>Reset</b>	Hold the Reset button for about 10 seconds until the PAIR and SYS LEDs are off, meaning the device has been reset to default setting.

■ **Bottom Panel**



**3.5 ENVIRONMENTAL SPECIFICATIONS**

- **Operating:**  
 Temperature: -20°C ~70 degrees C  
 Relative Humidity: 5% ~ 95% (non-condensing)
- **Storage:**  
 Temperature: -30°C ~75 degrees C  
 Relative Humidity: 5% ~ 95% (non-condensing)

**3.6 ELECTRICAL SPECIFICATIONS**

**Power over Ethernet Capability**

■ **Power Requirement:**

Power Input	Power Requirement
RJ45 PoE Input	802.3at/bt 48~54V DC, 2.5A max.
DC Input	48~54V DC, 2.5A max.

■ **Power Consumption:**

	48V DC Input	54V DC Input
<b>System On</b> (without PoE output)	7 Watts / 23.88 BTU	7 Watts / 23.88 BTU

### 3.7 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

### 3.8 RELIABILITY

MTBF > 50,000Hrs @ 25 degrees C

### 3.9 BASIC PACKAGING

- LRP-201-KIT x 1
- User's manual x 1
- Wall-mount Kit x 1
- RJ45 Dust Cap x 2
- Warning Sticker

### 3.10 PACKING INFORMATION

<b>Box Dimensions (W x D x H):</b>	300 x 170 x 90 mm
<b>Weight:</b>	1200g
<b>Carton Dimensions (W x D x H):</b>	385 x 340 x 490 mm
<b>Carton Weight:</b>	12.5kg
<b>Quantity:</b>	10pcs in one carton